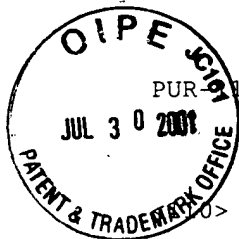


Rec'd PCT/PTO 30 JUL 2001
09/762224

#4



PUR-115:JJS:133252

SEQUENCE LISTING

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Kuhn, Richard John
Jeffers, Scott A.
Sharkey, Curtis Matthew
North, Cynthia Lin
Fishbach, Michael A.

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<141> 2001-02-02
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Cys Ser Ser Pro Pro Cys Tyr Pro Cys Cys Tyr Glu Lys Gln Pro Glu
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Gln Thr Leu Arg Met Leu Glu Asp Asn Val Asn Arg Pro Gly Tyr Tyr
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Glu Leu Leu Glu Ala Ser Met Thr Cys Arg Asn Arg Ser Arg His Arg	
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Arg Ser Val Thr Glu His Phe Asn Val Tyr Lys Ala Thr Arg Pro Tyr	
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Leu Ala Tyr Cys Ala Asp Cys Gly Asp Gly Tyr Phe Cys Tyr Ser Pro	
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Val Ala Ile Glu Lys Ile Arg Asp Glu Ala Ser Asp Gly Met Leu Lys	
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Ile Gln Val Ser Ala Gln Ile Gly Leu Asp Lys Ala Gly Thr His Ala	
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Thr Met Gly His Phe Ile Val Ala His Cys Pro Pro Gly Asp Tyr Leu	
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Lys Val Ser Phe Glu Asp Ala Asp Ser His Val Lys Ala Cys Lys Val	
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Gln Tyr Lys His Asp Pro Leu Pro Val Gly Arg Glu Lys Phe Val Val	
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Pro Asp Arg Thr Leu Leu Ser Gln Thr Ala Gly Asn Val Lys Ile Thr	

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cat gaa atc att cag tac tat tat gga cta tac ccc gcc gcc acc att His Glu Ile Ile Gln Tyr Tyr Tyr Gly Leu Tyr Pro Ala Ala Thr Ile 420 425 430			1296
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aca tgc tgc atg ctg gcc acc gcg agg aga aag tgc cta aca cca tac Thr Cys Cys Met Leu Ala Thr Ala Arg Arg Lys Cys Leu Thr Pro Tyr 450 455 460			1392
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Cys Ala Pro Arg Ala Asn Ala Ala Ser Phe Ala Glu Thr Met Ala Tyr	
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Leu Trp Asp Glu Asn Lys Thr Leu Phe Trp Met Glu Phe Ala Ala Pro	
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Cys Lys Val Tyr Thr Gly Val Tyr Pro Phe Met Trp Gly Gly Ala Tyr	
625 630 635 640	
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Arg Ser Asp Val Cys Lys His Asp His Ala Ser Ala Tyr Lys Ala His	
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acg gcc tct cta aaa gca aca atc agg atc agt tat ggc acc atc aac	2064
Thr Ala Ser Leu Lys Ala Thr Ile Arg Ile Ser Tyr Gly Thr Ile Asn	
675 680 685	
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Gln Thr Thr Glu Ala Phe Val Asn Gly Glu His Ala Val Asn Val Gly	
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755 760 765	
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Ser Arg Pro Ser Pro Gly Val Val His Val Pro Tyr Thr Gln Thr Pro	
770 775 780	
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Ser Gly Phe Lys Tyr Trp Leu Lys Glu Lys Gly Ser Ser Leu Asn Thr	
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Lys Ala Pro Phe Gly Cys Lys Ile Lys Thr Asn Pro Val Arg Ala Met	
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Asp Cys Ala Val Gly Ser Ile Pro Val Ser Met Asp Ile Pro Asp Ser	
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Gln Val Val Val Cys Thr His Ser Ser Asp Phe Gly Gly Val Ala Thr	
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Leu Ser Tyr Lys Thr Asp Lys Pro Gly Lys Cys Ala Val His Ser His	
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Gly Lys Val Thr Val His Phe Ser Thr Ala Ser Ala Ser Pro Ala Phe	
900 905 910	
aaa gtg tcc gtc tgt gac gca aaa aca acg tgc acg gcg gcg tgc gag	2784
Lys Val Ser Val Cys Asp Ala Lys Thr Thr Cys Thr Ala Ala Cys Glu	
915 920 925	
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Pro Pro Lys Asp His Ile Val Pro Tyr Gly Ala Ser His Asn Asn Gln
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gtc ttt ccg gac atg tca gga act gcg atg acg tgg gtg cag agg ctg 2880
 Val Phe Pro Asp Met Ser Gly Thr Ala Met Thr Trp Val Gln Arg Leu
 945 950 955 960

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 Ala Ser Gly Leu Gly Gly Leu Ala Leu Ile Ala Val Val Val Leu Val
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 Arg Thr Ser Phe Phe Leu Trp Val Ile Ile Leu Phe Gln Arg Thr Phe
 20 25 30

tcc atc cca ctt gga gtc atc cac aat agc aca tta cag gtt agt gat 151
 Ser Ile Pro Leu Gly Val Ile His Asn Ser Thr Leu Gln Val Ser Asp
 35 40 45

gtc gac aaa cta gtt tgt cgt gac aaa ctg tca tcc aca aat caa ttg 199
 Val Asp Lys Leu Val Cys Arg Asp Lys Leu Ser Ser Thr Asn Gln Leu
 50 55 60

aga tca gtt gga ctg aat ctc gaa ggg aat gga gtg gca act gac gtg 247
 Arg Ser Val Gly Leu Asn Leu Glu Gly Asn Gly Val Ala Thr Asp Val
 65 70 75

cca tct gca act aaa aga tgg ggc ttc agg tcc ggt gtc cca cca aag 295
 Pro Ser Ala Thr Lys Arg Trp Gly Phe Arg Ser Gly Val Pro Pro Lys
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gtg gtc aat tat gaa gct ggt gaa tgg gct gaa aac tgc tac aat ctt 343
 Val Val Asn Tyr Glu Ala Gly Glu Trp Ala Glu Asn Cys Tyr Asn Leu
 100 105 110

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Phe Leu Leu Gln Arg Trp Gly Gly Thr Cys His Ile Leu Gly Pro Asp	
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Cys Cys Ile Glu Pro His Asp Trp Thr Lys Asn Ile Thr Asp Lys Ile	
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Ile Gly Val Thr Gly Val Ile Ile Ala Val Ile Ala Leu Phe Cys Ile	
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Cys Lys Phe Val Phe	
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<211> 2103

<212> DNA

<213> Filovirus Marburg

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acc acg gac cca agc agt gat gat gag gac ctc gca aca tcc ggc tca thr thr asp pro ser ser asp asp glu asp leu ala thr ser gly ser 260 265 270	822
ggg tcc gga gaa cga gaa ccc cac aca act tct gat gcg gtc acc aag	870

gly	ser	gly	glu	arg	glu	pro	his	thr	thr	ser	asp	ala	val	thr	lys		
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gln	gly	leu	ser	ser	thr	met	pro	pro	thr	pro	ser	pro	gln	pro	ser		
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thr	pro	gln	gln	gly	gly	asn	asn	thr	asn	his	ser	gln	asp	ala	val		
305				310					315					320			
act	gaa	cta	gac	aaa	aat	aac	aca	act	gca	caa	ccg	tcc	atg	ccc	cct	1014	
thr	glu	leu	asp	lys	asn	asn	thr	thr	ala	gln	pro	ser	met	pro	pro		
				325					330					335			
cat	aac	act	acc	aca	atc	tct	act	aac	aac	acc	tcc	aaa	cac	aac	ttc	1062	
his	asn	thr	thr	thr	ile	ser	thr	asn	asn	thr	ser	lys	his	asn	phe		
				340				345					350				
agc	act	ctc	tct	gca	cca	tta	caa	aac	acc	acc	aat	gac	aac	aca	cag	1110	
ser	thr	leu	ser	ala	pro	leu	gln	asn	thr	thr	asn	asp	asn	thr	gln		
		355				360						365					
agc	aca	atc	act	gaa	aat	gag	caa	acc	agt	gcc	ccc	tcg	ata	aca	acc	1158	
ser	thr	ile	thr	glu	asn	glu	gln	thr	ser	ala	pro	ser	ile	thr	thr		
		370				375					380						
ctg	cct	cca	acg	gga	aat	ccc	acc	aca	gca	aag	agc	acc	agc	agc	aaa	1206	
leu	pro	pro	thr	gly	asn	pro	thr	thr	ala	lys	ser	thr	ser	ser	lys		
385				390						395					400		
aaa	ggc	ccc	gcc	aca	acg	gca	cca	aac	acg	aca	aat	gag	cat	ttc	acc	1254	
lys	gly	pro	ala	thr	thr	ala	pro	asn	thr	thr	asn	glu	his	phe	thr		
				405				410						415			
agt	cct	ccc	ccc	acc	ccc	agc	tcg	act	gca	caa	cat	ctt	gta	tat	ttc	1302	
ser	pro	pro	pro	thr	pro	ser	ser	thr	ala	gln	his	leu	val	tyr	phe		
				420				425					430				
aga	aga	aag	cga	agt	atc	ctc	tgg	agg	gaa	ggc	gac	atg	ttc	cct	ttt	1350	
arg	arg	lys	arg	ser	ile	leu	trp	arg	glu	gly	asp	met	phe	pro	phe		
		435				440						445					
ctg	gat	ggg	tta	ata	aat	gct	cca	att	gat	ttt	gac	cca	gtt	cca	aat	1398	
leu	asp	gly	leu	ile	asn	ala	pro	ile	asp	phe	asp	pro	val	pro	asn		
		450				455					460						
aca	aaa	aca	atc	ttt	gat	gaa	tcc	tct	agt	tct	ggc	gcc	tcg	gct	gag	1446	
thr	lys	thr	ile	phe	asp	glu	ser	ser	ser	ser	gly	ala	ser	ala	glu		
465				470					475					480			
gaa	gat	caa	cat	gcc	tcc	ccc	aat	att	agt	tta	act	tta	tct	tat	ttt	1494	
glu	asp	gln	his	ala	ser	pro	asn	ile	ser	leu	thr	leu	ser	tyr	phe		
				485				490						495			
cct	aat	ata	aat	gag	aac	act	gcc	tac	tct	gga	gaa	aat	gag	aat	gat	1542	
pro	asn	ile	asn	glu	asn	thr	ala	tyr	ser	gly	glu	asn	glu	asn	asp		

500	505	510	
tgt gat gca gag tta aga att tgg agc gtt cag gag gat gac ctg gcc cys asp ala glu leu arg ile trp ser val gln glu asp asp leu ala 515 520 525			1590
gca ggg ctc agt tgg ata ccg ttt ttt ggc cct gga att gaa gga ctt ala gly leu ser trp ile pro phe phe gly pro gly ile glu gly leu 530 535 540			1638
tac act gct gtt tta att aaa aat caa aac aat ttg gtc tgc agg ttg tyr thr ala val leu ile lys asn gln asn asn leu val cys arg leu 545 550 555 560			1686
agg cgt cta gcc aat caa act gcc aaa tcc ttg gaa ctc tta ttg aga arg arg leu ala asn gln thr ala lys ser leu glu leu leu leu arg 565 570 575			1734
gtc aca act gag gaa aga aca ttc tcc tta atc aat aga cat gct att val thr thr glu glu arg thr phe ser leu ile asn arg his ala ile 580 585 590			1782
gac ttt cta ctc aca aga tgg gga gga aca tgc aaa gtg ctt gga cct asp phe leu leu thr arg trp gly gly thr cys lys val leu gly pro 595 600 605			1830
gat tgt tgc atc ggg ata gaa gac ttg tcc aaa aat att tca gag caa asp cys cys ile gly ile glu asp leu ser lys asn ile ser glu gln 610 615 620			1878
att gac caa att aaa aag gac gaa caa aaa gag ggg act ggt tgg ggt ile asp gln ile lys lys asp glu gln lys glu gly thr gly trp gly 625 630 635 640			1926
ctg ggt ggt aaa tgg tgg aca tcc gac tgg ggt gtt ctt act aac ttg leu gly gly lys trp trp thr ser asp trp gly val leu thr asn leu 645 650 655			1974
ggc att ttg cta cta tta tcc ata gct gtc ttg att gct cta tcc tgt gly ile leu leu leu leu ser ile ala val leu ile ala leu ser cys 660 665 670			2022
att tgt cgt atc ttt act aaa tat atc gga taa cggtta aatgtgtaat gattaggact ile cys arg ile phe thr lys tyr ile gly 675 680			2080
ttaggacaat tgctactgag ccc			2103